

Annual Waterways Report

Prosser Catchment

Water Assessment Branch

2009

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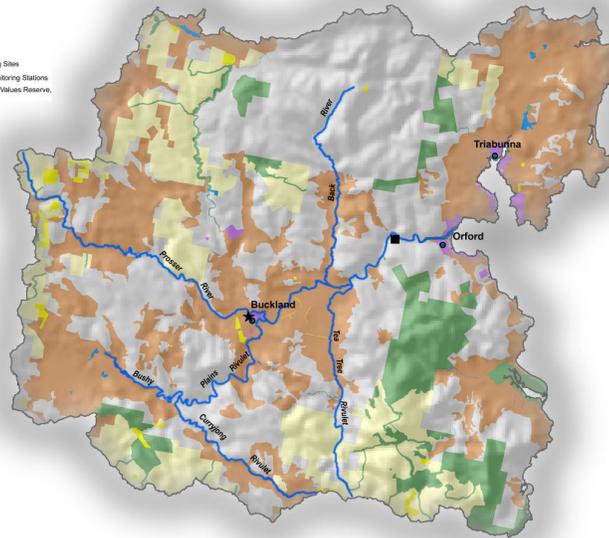
Prosser Catchment

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1. About the catchment

The Prosser River catchment is located on the southeast coast of Tasmania and drains into the Mercury Passage that lies between the seaside township of Orford and Maria Island. While the majority of the 1000 km² land area is drained by the Prosser River (length 42 km), most streams in the catchment are smaller and flow only on a seasonal basis. Rainfall across the catchment is quite low, with average annual rainfall at Orford less than 700 mm. Because of the low rainfall and the generally drought-prone nature of the area, two instream dams have been constructed across the Prosser River upstream of Orford to maintain water supply for the township.

Outside of Orford, which is a popular summer holiday destination for residents of Hobart, much of the catchment is used for broad-acre grazing and forest harvesting, with small patches of cropping where a water supply is reliable.

2. Streamflow and Water Allocation

Streamflow

There is one streamflow monitoring station maintained in the Prosser River catchment as part of the DPIW state-wide monitoring network. This station is:

- Prosser River upstream lower dam (2202).

2202 was closed between 1994 and 2004.

Streamflow in the Prosser River upstream of lower dam was very low for the majority of the year, and was well below the historical annual average. Peak flows occurred in December. The minimum flow recorded during the year was zero ML/day, which occurred for 151 days of the year. The maximum flow recorded was 198 ML/day in December.

Monthly discharges were significantly below historical averages. Totals of zero ML were recorded for both January and February, and totals below 1 ML were recorded for the months June, July and September.



Fig: Prosser River upstream lower dam.

Water Allocation

The Prosser River catchment had a total of 4,605 ML in licensed allocations for 2008. The following table shows the breakdown of the allocations.

	Total Allocation (ML)
Irrigation	3,266
Stock & Domestic	48
Water supply	1,270
Other	21

Of the total licensed water allocation within this catchment, 3,963 ML is held within constructed storages and 642 ML is taken directly from rivers and streams.

Water Use Restrictions

There are no water restriction triggers in existence for the Prosser River catchment.

2008 Waterways Monitoring Report

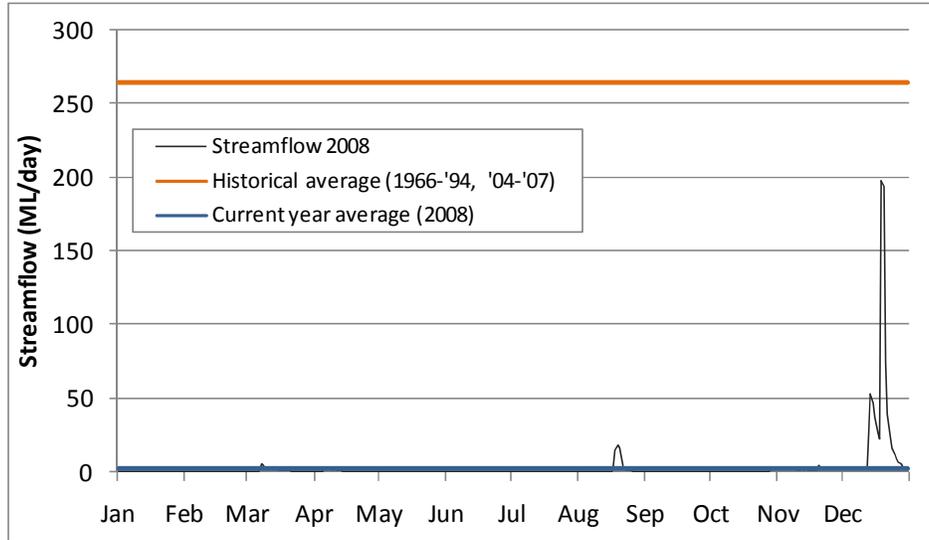


Fig: Time series of 2008 streamflow in the Prosser River upstream lower dam (station 2202), plus a comparison of current year average flow with the historical.

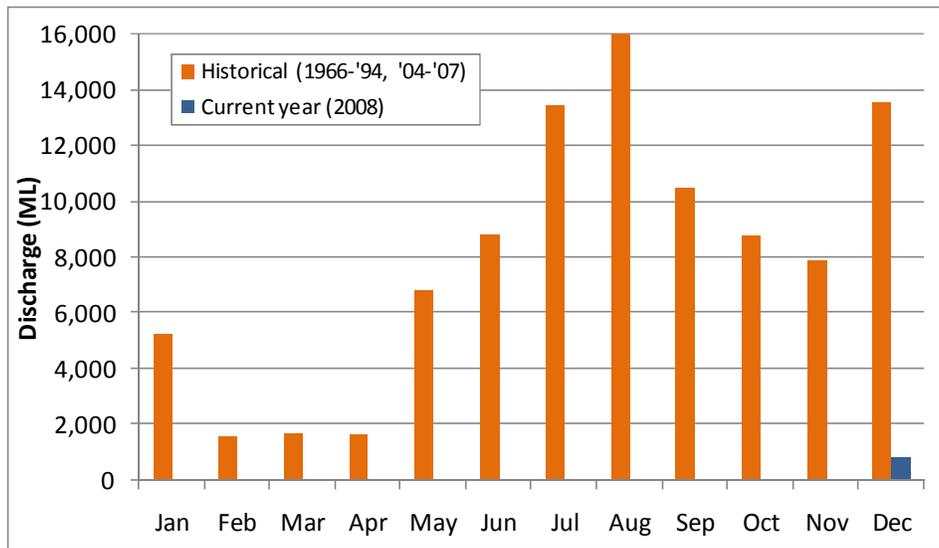


Fig: Comparison of total monthly discharge with historical average for the Prosser River upstream lower dam (station 2202).

3. Water Quality

Under the DPIW Statewide baseline monitoring network, instream sensors were maintained throughout 2008 at one location within the catchment:

- Prosser River upstream lower dam (station 2202).

Water temperature, electrical conductivity and turbidity are continuously monitored at this station. Missing data is due to instrument malfunction or low water level.

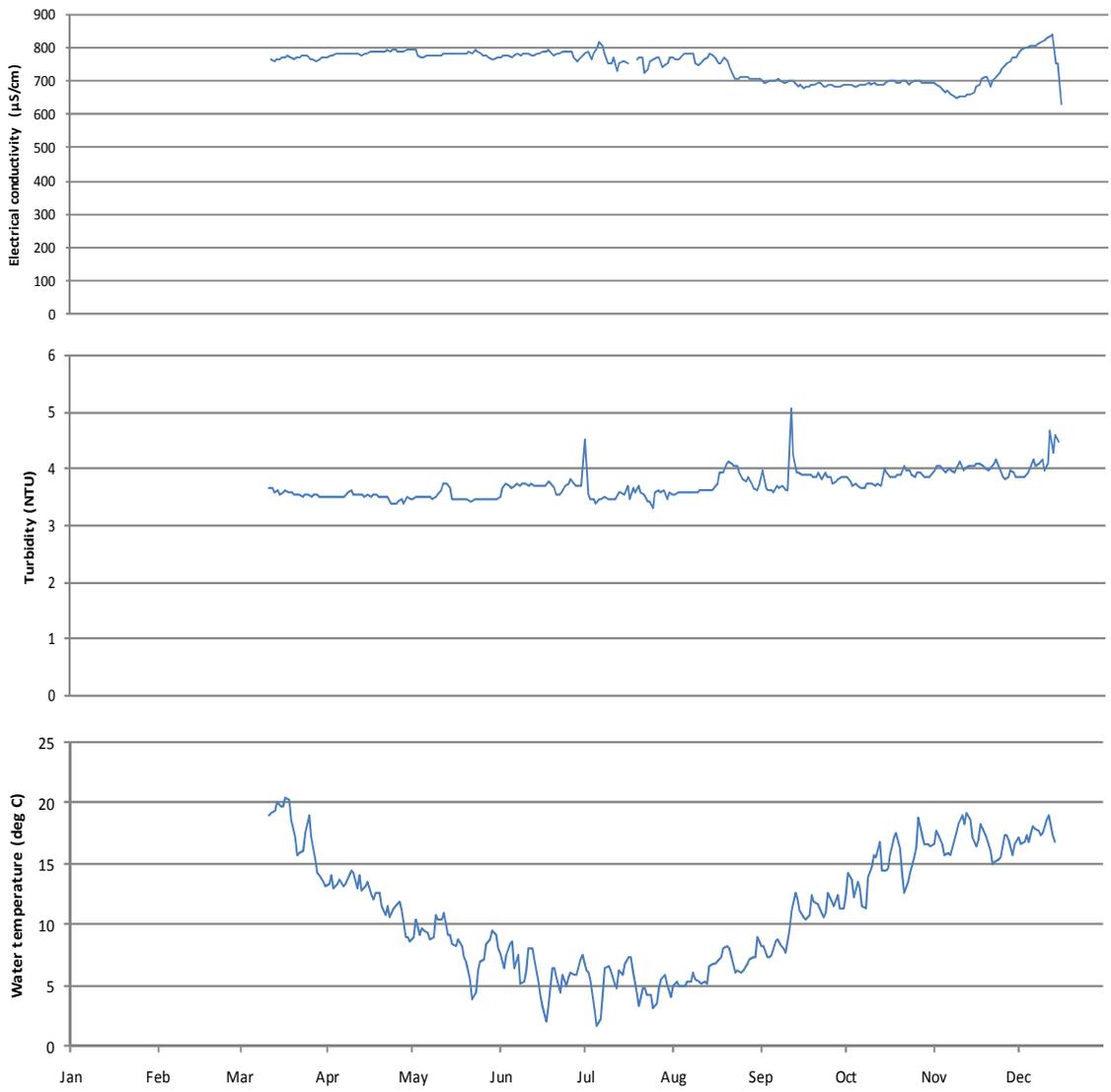


Fig: Continuous instream water quality for Prosser River upstream lower dam (station 2202) during 2008.

2008 Waterways Monitoring Report

Monthly sampling is also conducted at a single location within the catchment:

- Prosser River upstream lower dam (station 2202).

Sampling consists of spot measurements of selected water quality parameters on-site (water temperature, turbidity, conductivity, pH and dissolved oxygen). Bottled samples of water are also collected for analyses of nutrients (collected monthly) and pesticides (collected quarterly) at the Analytical Services Tasmania laboratory.

DPIW has developed site-specific trigger values for this site. The site-specific trigger values are based on monthly monitoring data collected between 2003 and 2006, and enable an assessment of *potential change* at a site since that time. The site-specific trigger values provide a target for the maintenance of existing ambient water quality, recognising that existing water quality at a site may already be influenced by varying degrees of impact. These trigger values indicate an expected range during daytime, base-flow conditions and should not be applied to high-flow periods.

A report containing further information about the interpretation of the DPIW site-specific trigger values is available through the DPIW website.

The table below provides summary statistics for monthly monitoring during 2008, as well as the relevant site-specific trigger values. Where the 2008 annual median exceeds a trigger value, this has been shaded to flag a potential change in water quality related to this parameter.

Links

1. Water Information System of Tasmania
www.water.dpiw.tas.gov.au/wist/
2. Pesticide monitoring in Tasmania
www.dpiw.tas.gov.au/pesticidemonitoring
3. DPIW surface water quality monitoring
www.dpiw.tas.gov.au/waterquality
4. National water quality guidelines
www.environment.gov.au/water/quality/nwqms/

Prosser River upstream lower dam	Minimum	Median	Maximum	No. samples	Site-specific trigger value	
					lower	upper
Temperature (° C)	2.8	13.6	18.6	12	7	19
Turbidity (NTU)	0.9	1.5	4.7	12		15
Electrical Conductivity (µS/cm)	626	763	969	12	312	666
Field pH	6.97	7.50	8.30	11	7.2	7.7
Dissolved Oxygen (mg/L)	7.3	10.4	13.3	12	8.2	11.4
Dissolved Oxygen (percent saturation)	74.1	92.9	115.0	11	84	97
Total Nitrogen (mg/L)	0.260	0.345	0.980	12		0.748
Total Phosphorus (mg/L)	<0.005	0.008	0.016	12		0.023
Dissolved Reactive Phosphorus-P (mg/L)	<0.002	0.003	0.004	12		0.005
Nitrate-N (mg/L)	<0.002	<0.002	0.312	12		0.105
Nitrite-N (mg/L)	<0.002	<0.002	0.008	12		0.003
Ammonia-N (mg/L)	<0.002	0.003	0.010	12		0.018

Note that some samples were taken during periods of very low or no flow

4. River Health

The Australian River Assessment System (AUSRIVAS) is a standardised national system for assessment of river condition that uses benthic macroinvertebrates.

The AUSRIVAS models predict the aquatic macroinvertebrate fauna that would be expected to occur at a site in the absence of environmental stress such as pollution, habitat degradation or flow regulation. A comparison of the macroinvertebrates expected to occur at the test site with those actually collected (O/E ratio) provides a site specific measure of the biological impairment of the test site. Further details about AUSRIVAS can be found at:

www.ausrivas.canberra.edu.au/ausrivas

AUSRIVAS assessments are carried out at one location in the Prosser River catchment:

- Prosser River at Buckland Road

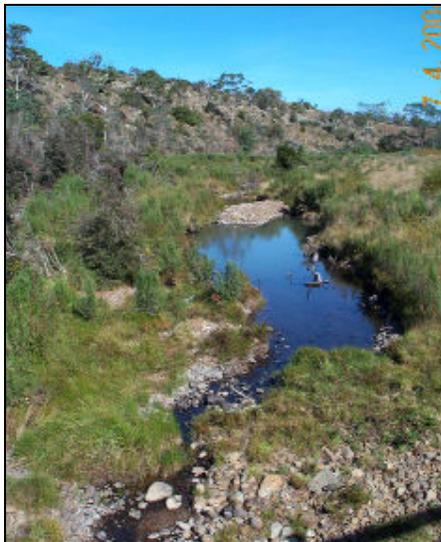


Fig: Prosser River at Buckland Road.

Prosser River at Buckland Road

This site is in the middle reaches of the Prosser River catchment immediately upstream of the town of Buckland. The river at this site has an average width of 8 metres and is characterised by shallow pools and riffles flowing over cobble/pebble substrate. During drier months the riffle habitat becomes dry and the pools are disconnected. The riparian zone has been subject to moderate disturbance through vegetation clearing for agriculture and the encroachment of weeds such as gorse, blackberries, and willow.

Combined season riffle assessments are not available due to the lack of riffle habitat during the autumn sampling rounds. Single season AUSRIVAS assessments of the riffle habitat have classified this site as equivalent to reference (Band A) and as significantly impaired (Band B).

Combined season AUSRIVAS assessments of the edgewater habitat are highly variable with O/E scores ranging from 1.26 (Band X) in Spr03/Au04 to 0.84 (Band B) in Spr04/Au05. This variation is likely to be in response to seasonal flow variation.

An electrofishing survey during 2004 identified the presence of jollytail (*Galaxias maculatus*), short-finned eel (*Anguilla australis*) and brown trout (*Salmo trutta*).

Name	Season	Riffle		Edgewater	
		O/E Taxa	Band	O/E Taxa	Band
Prosser River at Buckland Road	Spr03/ Au04		NS	1.26	X
	Spr04/ Au05		NS	0.84	B
	Spr05/ Au06		NS	0.99	A
	Spr06/ Au07		NS		OE
	Spr07/ Au08		NS		NS
	Au08/ Spr08		NS		NS

(OE = outside the experience of the model)

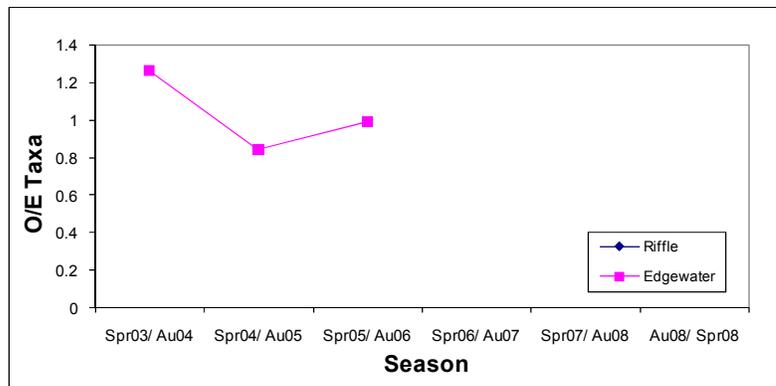


Fig: Combined season AUSRIVAS O/E Taxa scores for the Prosser River at Buckland Road.